

What is Claimed is:

- Sub 924* 1. A system for sorting mailpiece and detecting the presence of harmful materials in the mailpieces, the system comprising comprising:
- a component for singulating and feeding a mailpiece along a feed path of the system;
 - a detection module positioned downstream of the component for singulating and feeding the mailpiece, the detection module for detecting the presence of harmful material in the mailpiece;
 - a diverter for diverting the mailpiece into a collection module if harmful material is detected by the detection module as being present in the mailpiece;
 - a system for reading the mailpiece and determining a destination bin if the detection module does not detect the presence of harmful material in the mailpiece; and
 - a bin module comprising two or more destination bins for receiving a mailpiece after a destination bin has been determined by the system for reading the mailpiece and determining the destination bin.
2. The system as claimed in claim 1 wherein the system for reading the mailpiece and determining a destination bin comprises:
- a control system for providing processing of information read from the mailpiece and an addressee database for providing addressee information which is compared to information read from the mailpiece in order to determine the appropriate addressee and destination bin for the mailpiece.
3. The system as claimed in claim 1 wherein the detection module comprises:
- a first set of guide walls, each guide wall in the first set of guide walls positioned parallel to the feed path and facing the other guide wall forming an alley along the feed path;

a second set of guide walls positioned down stream of the first set of guide walls along the feed path and forming a gap along the feed path between the first set of guide walls and the second set of guide walls, each guide wall in the second set of guide walls positioned parallel to the feed path and facing the other guide wall forming an alley along the feed path; and
a detection apparatus positioned along the feed path in the area of the gap along the feed path between the first set of guide walls and the second set of guide walls.

4. The system as claimed in claim 3 and whereby the presence of harmful material in the mailpiece is detected as the mailpiece passes by the gap along the feed path between the first set of guide walls and the second set of guide walls.
5. The system as claimed in claim 3 wherein the detection apparatus comprises at least one apparatus for the group comprising: an x-ray apparatus, a laser, an infrared spectroscope or a scanner.
6. The system as claimed in claim 3 wherein at least a portion of the feed path comprises a transport belt which travels along an edge of the first set guide walls and an edge of the second set of guide walls.
7. The system as claimed in claim 1 wherein the detection module comprises:

a first set of first and second driven belts, each driven belt in the first set of driven belts positioned parallel to the feed path and facing the other driven belt and forming an alley along the feed path;

a second set of first and second driven belts positioned down stream of the first set of first and second driven belts along the feed path and forming a gap along the feed path between the first set of first and second driven belts and the second set of first and second driven belts, each driven belt in the second set of driven belts positioned parallel to

the feed path and facing the other driven belt forming an alley along the feed path; and

a detection apparatus positioned along the feed path in the area of the gap along the feed path between the first set of driven belts and the second set of driven belts.

8. The system as claimed in claim 7 wherein the detection apparatus comprises at least one apparatus for the group consisting of: an x-ray apparatus, a laser, an infrared spectroscope and a scanner.
9. The system as claimed in claim 7 wherein at least a portion of the feed path comprises a transport belt which travels along an edge of the first set of first and second driven belts and the second set of first and second driven belts.
10. The system as claimed in claim 1 further comprising:
a detection area, the detection area containing the component for singulating and feeding a mailpiece, the detection module and the collection module.
11. The system as claimed in claim 10 further comprising:
a clean area, the clean area for containing the bin module, the clean area connected to the detection area at a transition area, the detection area having an area pressure lesser than an air pressure in the clean area whereby air flow is from the clean area to the detection area.
12. A system for sorting and sanitizing incoming mailpieces comprising:

an component for singulating and feeding a mailpiece along a feed path of the system;

a detector module positioned downstream of the component for singulating and feeding the mailpiece, the detector module for detecting harmful materials in the mailpiece, the detector module comprises:

a first set of guide walls, each guide wall in the first set of guide walls positioned parallel to the feed path and facing the other guide wall forming an alley along the feed path;

a second set of guide walls positioned down stream of the first set of guide walls along the feed path and forming a gap along the feed path between the first set of guide walls and the second set of guide walls, each guide wall in the second set of guide walls positioned parallel to the feed path and facing the other guide wall forming an alley along the feed path; and

a detection apparatus positioned along the feed path in the area of the gap along the feed path between the first set of guide walls and the second set of guide walls, the detection apparatus comprises at least one apparatus for the group consisting of: an x-ray apparatus, a laser, an infrared spectroscope or a scanner;

a system for reading the mailpiece and determining a destination bin, the system for reading the mailpiece and determining a destination bin comprises:

a control system for providing processing of information read from the mailpiece and an addressee database for providing addressee information which is compared to information read from the mailpiece in order to determine the appropriate addressee and destination bin for the mailpiece; and

a bin module comprising two or more destination bins for receiving a mailpiece after a destination bin has been determined by the system for reading the mailpiece and determining the destination bin;

wherein at least a portion of the feed path comprises a transport belt which travels along an edge of the first set guide walls and an edge of the second set of guide walls; and

whereby the harmful material in the mailpiece is detected as the mailpiece passes by the gap along the feed path between the first set of guide walls and the second set of guide walls.

13. The system as claimed in claim 12 further comprising:
a detection area, the detection area containing the component for singulating and feeding a mailpiece and the detector module.
14. The system as claimed in claim 13 further comprising:
a clean area, the clean area for containing the bin module, the clean area connected to the detection area at a connection zone, the detection area having an area pressure lesser than an air pressure in the clean area whereby air flow is from the clean area to the detect area.
15. The apparatus as claimed in claim 1 whereby the harmful material being detected is at least one material from the group consisting of: explosives and biohazards.